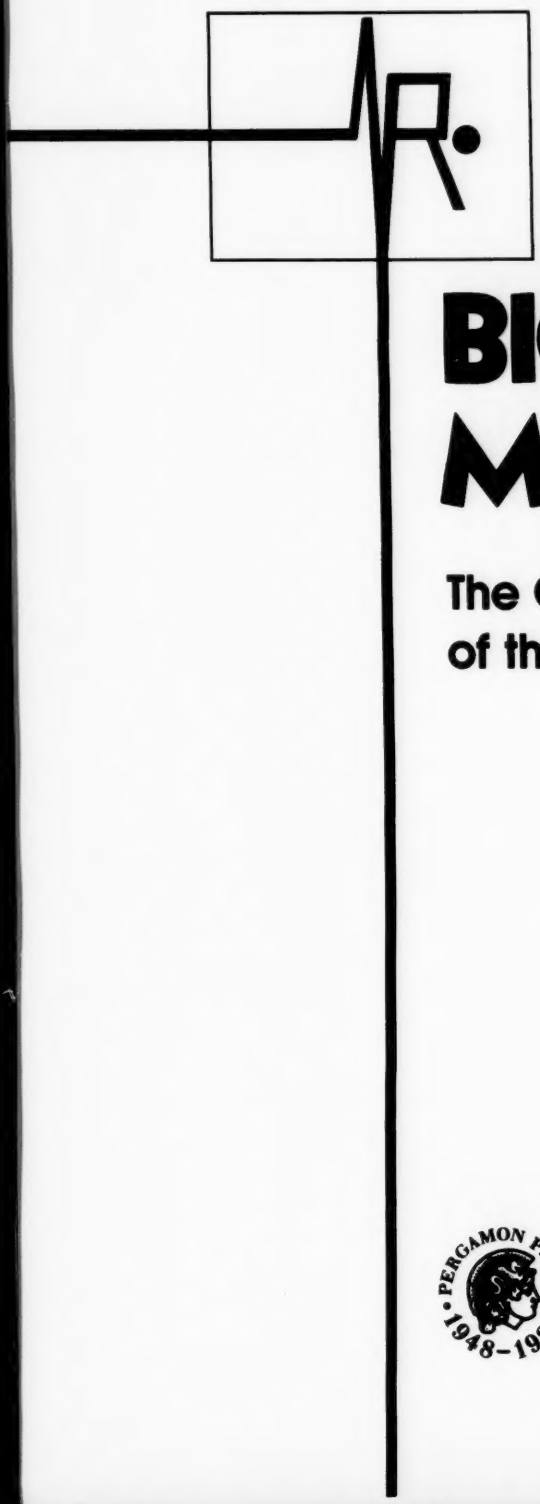

FREE RADICAL BIOLOGY & MEDICINE

The Official Journal of the Oxygen Society

CONTENTS AND AUTHOR INDEX

VOLUME 4, 1988

PERGAMON PRESS
New York ■ Oxford ■ Beijing ■ Frankfurt
São Paulo ■ Sydney ■ Tokyo ■ Toronto

Free Radical Biology & Medicine

The Official Journal of the Oxygen Society

Co-Editor-in-Chief
Original research, hypothesis papers

Kelvin J. A. Davies
Institute for Toxicology and Department of Biochemistry
University of Southern California
1985 Zonal Avenue, HSC-PSC 614–616
Los Angeles, CA 90033, USA

Co-Editor-in-Chief
Scientific reviews, survey articles

William A. Pryor
Thomas and David Boyd Professor
Biodynamics Institute
711 Choppin
Louisiana State University
Baton Rouge, LA 70803, USA

Associate Editor
Scientific reviews, survey articles
Gary Winston
Louisiana State University, USA

International Editorial Board

Bruce N. Ames
University of California-Berkeley, USA

Steven D. Aust
Utah State University, USA

Anne P. Autor
University of British Columbia, Canada

Bernard M. Babior
Scripps Clinic and Research Foundation, USA

Joseph V. Bannister
Oxford University, UK

Carmia Borek
Columbia University, USA

Donald C. Borg
Brookhaven National Laboratory, USA

Alberto Boveris
University of Buenos Aires, Argentina

John Butler
Christie Hospital/Holt Radium Institute, UK

Arthur I. Cederbaum
Mount Sinai School of Medicine, USA

Leslie G. Cleland
Royal Adelaide Hospital, Australia

Gideon Czapski
Hebrew University, Israel

Thomas L. Dormandy
Whittington Hospital, UK

James H. Doroshow
City of Hope National Medical Center, USA

Ingrid Emerit
CNRS, France

Lars Ernster
University of Stockholm, Sweden

Ronald W. Estabrook
University of Texas/Dallas, USA

Vittorio E. Ferrari
Zambon and the University of Milan, S.p.A., Rome, Italy

Robert A. Floyd
Oklahoma Medical Research Foundation, USA

Christopher S. Foote
University of California–Los Angeles, USA

Henry J. Forman
Children's Hospital of Los Angeles, USA

Bruce Freeman
University of Alabama/Birmingham

Irwin Fridovich
Duke University Medical Center, USA

Bernard D. Goldstein
Rutgers Medical School, USA

Robert A. Greenwald
Long Island Jewish Hillside Medical Center, USA

John M. C. Gutteridge
National Institute for Biological Standards, UK

Barry Halliwell
University of London, Kings College, UK

Hosni M. Hassan
North Carolina State University, USA

Osamu Hayaishi
Osaka Medical College, Japan

H. A. O. Hill
Oxford University, UK

Paul Hochstein
University of Southern California, USA

Keith U. Ingold
National Research Council, Canada

Manfred L. Karnovsky
Harvard Medical School, USA

Norman I. Krinsky
Tufts University School of Medicine, USA

William E. M. Lands
University of Illinois Medical Center, USA

J. William Lown
University of Alberta, Canada

Joe M. McCord
University of South Alabama, USA

Lawrence J. Marnett
Wayne State University, USA

Ronald P. Mason
National Institute of Environmental Health Sciences, USA

Morimitsu Nishikimi
University of Nagoya, Japan

Sten Orrenius
Karolinska Institute, Sweden

Lester Packer
University of California–Berkeley, USA

John E. Repine
University of Colorado Medical Center, USA

Catherine Rice-Evans
Royal Free Hospital School of Medicine, UK

Giuseppe Rotilio
City University of Rome, Italy

Bengt Samuelsson
Karolinska Institute, Sweden

Alex Sevanian
University of Southern California, USA

Helmut Sies
University of Düsseldorf, West Germany

Michael G. Simic
National Bureau of Standards, USA

Trevor F. Slater
Brunel University, England

Harold M. Swartz
University of Illinois College of Medicine, USA

Al L. Tappel
University of California–Davis, USA

Paul O. P. Ts'o
Johns Hopkins University, USA

Fulvio Ursini
University of Padua, Italy

Yu. A. Vladimirov
Moscow State Medical Institute, USSR

Steven J. Weiss
University of Michigan, USA

Christine Winterbourn
Christchurch School of Medicine, New Zealand

Journal of Free Radicals in Biology & Medicine (final issue, Volume 2, Numbers 5/6, 1986) and *Advances in Free Radical Biology and Medicine* (final issue, Volume 2, Number 2, 1986) were merged as of Volume 3, Number 1, 1987, of *Free Radical Biology & Medicine.*

Publishing, Advertising, and Subscription Offices: Pergamon Press, Inc., Fairview Park, Elmsford, New York 10523, USA; or, Pergamon Press plc, Headington Hill Hall, Oxford OX3 0BW, England.

Published monthly: 1988: Vol. 4 (six issues), $145.00; Vol. 5 (six issues), $145.00; *Annual institutional rate,* $290.00. *Two-year institutional subscription rate* (1988/89): $551.00. *Personal subscription* rate for those whose library subscribes at the regular rate (1988, Vols. 4–5): $140.00. A subscription to *Free Radical Biology & Medicine* is a benefit to membership of the Oxygen Society. For information about the society, please contact: Dr. Michael Simic, Secretary-Treasurer, Oxygen Society, Center for Radiation Research, C205 Bldg. 245, National Bureau of Standards, Gaithersburg, MD 20899. Members of the Society for Free Radical Research may order personal subscriptions at a concessional rate, details of this rate are available upon request. Prices are subject to change without notice. Notify 8 weeks in advance of address change with a copy of the subscription mailing label. *Microform subscriptions:* Back issues of all previously published volumes are available direct from Pergamon Press. Back issues of Pergamon journals in microform can be obtained from UMI, 300 North Zeeb Road, Ann Arbor, MI 48106, USA.

Copyright © 1988 Pergamon Press plc

Copyright Notice. It is a condition of publication that manuscripts submitted to this journal have not been published and will not be simultaneously submitted elsewhere. By submitting a manuscript, the authors agree that the copyright for their article is transferred to the publisher, of and when the article is accepted for publication. The copyright covers the exclusive rights to reproduce and distribute the article, including reprints, photographic reproductions, microform, or any other reproductions of similar nature and translations. No part of this publication may be reproduced, stored in a retrieval system, or transmitted in any form or by any means, electronic, electrostatic, magnetic tape, mechanical, photocopying, recording, or otherwise, without permission in writing from the copyright holder.

Photocopying in ... ...n for users in the USA. The Item-Fee Code for this publication indicates that authorization to photocopy items for internal or personal use is granted by the copyright holder for libraries or other users registered with the Copyright Clearance Center (CCC) Transactional Reporting Service provided the stated fee for copying, beyond that permitted by Section 107 or 108 of the United States Copyright Law, is paid. The appropriate remittance of $3.00 per copy is paid directly to the Copyright Clearance Center Inc., 27 Congress Street, Salem, MA 01970.

Permission for other use. The copyright owner's consent does not extend to copying for general distribution, for promotion, for creating new works, or for resale. Specific written permission must be obtained from the publisher for copying. Please contact the Subsidiary Rights Manager, Publishing Services, Dept. at either Pergamon Press plc or Pergamon Press, Inc.

The Item-Fee Code for this publication is: 0891-5849/88 $3.00 + .00.

CONTENTS
Volume 4, 1988

Volume 4, Number 1 — 1988

CONTENTS

William A. Pryor	1	The Radical View
		Conference Proceedings: Role of Oxygen Radicals in Myocardial Ischemia
	3	Editor's Note
Robert A. Kloner	5	Introduction to the Role of Oxygen Radicals in Myocardial Ischemia and Infarction
Joe M. McCord	9	Free Radicals and Myocardial Ischemia: Overview and Outlook
Karen P. Burton	15	Evidence of Direct Toxic Effects of Free Radicals on the Myocardium
Tetsuji Miura, Derek M. Yellon, John Kingma, James M. Downey	25	Protection Afforded by Allopurinol in the First 24 Hours of Coronary Occlusion is Diminished After 48 Hours
Steven W. Werns, Benedict R. Lucchesi	31	Leukocytes, Oxygen Radicals, and Myocardial Injury Due to Ischemia and Reperfusion
Karin Przyklenk	39	Oxygen-Derived Free Radicals and 'Stunned Myocardium'
Timothy J. Gardner	45	Oxygen Radicals in Cardiac Surgery
		Review Article
S. N. Chatterjee, Sanjiv Agarwal	51	Liposomes as Membrane Model for Study of Lipid Peroxidation
	73	Announcements and Calendar
	75	Instructions to Contributors

Volume 4, Number 2 — 1988

CONTENTS

Kelvin J. A. Davies	77	The Radical View
		Original Contributions
James A. Scott, Charles J. Homcy, Ban-An Khaw, Carlos A. Rabito	79	Quantitation of Intracellular Oxidation in a Renal Epithelial Cell Line

Johan J. P. Gille, Heleen M. Wortelboer, Hans Joenje 85 Effect of Normobaric Hyperoxia on Antioxidant Defenses of HELA and CHO Cells

E. A. Lissi, T. Cáceres, L. A. Videla 93 Visible Chemiluminescence from Rat Brain Homogenates Undergoing Autoxidation. II. Kinetics of the Luminescence Decay

Review Articles

Bernhard Hennig, Ching K. Chow 99 Lipid Peroxidation and Endothelial Cell Injury: Implications in Atherosclerosis

Gabor M. Rubanyi 107 Vascular Effects of Oxygen-Derived Free Radicals

Jawaharlal M. Patel, Edward R. Block 121 The Effect of Oxidant Gases on Membrane Fluidity and Function in Pulmonary Endothelial Cells

135 Letter to the Editor

137 Announcement and Calendar

139 Instructions to Contributors

Volume 4, Number 3 1988

CONTENTS

Original Contributions

J. M. Kanabus-Kaminska, M. Feeley, H. C. Birnboim 141 Simultaneous Protective and Damaging Effects of Cysteamine on Intracellular DNA of Leukocytes

Nicholas J. Schisler, Shiva M. Singh 147 Modulation of Selenium-Dependent Glutathione Peroxidase (Se-GSH-Px) Activity in Mice

Cesar G. Fraga, Brian E. Leibovitz, Al L. Tappel 155 Lipid Peroxidation Measured as Thiobarbituric Acid-Reactive Substances in Tissue Slices: Characterization and Comparison with Homogenates and Microsomes

Alberto Bindoli, Lucia Cavallini, Maria Pia Rigobello, Mariagrazia Coassin, Fabio Di Lisa 163 Modification of the Xanthine-Converting Enzyme of Perfused Rat Heart During Ischemia and Oxidative Stress

Review Articles

Peter J. O'Brien 169 Radical Formation During the Peroxidase Catalyzed Metabolism of Carcinogens and Xenobiotics: The Reactivity of These Radicals with GSH, DNA, and Unsaturated Lipid

Pieter Biemond, Antonius J. G. Swaak, Henk G. van Eijk, Johan F. Koster 185 Superoxide Dependent Iron Release from Ferritin in Inflammatory Diseases

199 Announcements and Calendar

201 Instructions to Contributors

Volume 4, Number 4 1988

CONTENTS

Kelvin J. A. Davies, William A. Pryor 203 The Radical View: Oxygen Society Membership Information

Original Contributions

Junji Terao, Setsuro Matsushita 205 Quinone Formation from Benzo[*a*]pyrene by Free Radicals: Effects of Antioxidants

Richard H. Clarke, Kouichi Nakagawa, Jeffrey M. Isner 209 The Production of Short-Lived Free Radicals Accompanying Laser Photoablation of Cardiovascular Tissue

Alasdair J. Carmichael, Carmen M. Arroyo, Lorris G. Cockerham 215 Reaction of Disodium Cromoglycate with Hydrated Electrons

Hypothesis Paper

William A. Pryor 219 Why is the Hydroxyl Radical the Only Radical that Commonly Adds to DNA? Hypothesis: It has a Rare Combination of High Electrophilicity, High Thermochemical Reactivity, and a Mode of Production that can Occur Near DNA

Review Article

Paolo Bellavite 225 The Superoxide-Forming Enzymatic System of Phagocytes

263 Announcements and Calendar

265 Instructions to Contributors

Volume 4, Number 5 1988

CONTENTS

William A. Pryor 267 The Radical View

Original Contributions

Lee A. Morehouse, Steven D. Aust 269 Reconstituted Microsomal Lipid Peroxidation: ADP-FE^{3+}-Dependent Peroxidation of Phospholipid Vesicles Containing NADPH-Cytochorome P450 Reductase and Cytochrome P450

Lorris G. Cockerham, Carmen M. Arroyo, John D. Hampton 279 Effect of 4-Hydroxypyrazolo (3,4-d) Pyrimidine (Allopurinol) on Post-irradiation Cerebral Blood Flow: Implications of Free Radical Involvement

B. Pilas, T. Sarna, B. Kalyanaraman, H. M. Swartz 285 The Effect of Melanin on Iron Associated Decomposition of Hydrogen Peroxide

Sara Goldstein, Christa Michel, Wolf Bors, Manfred Saran, Gidon Czapski 295 A Critical Reevaluation of Some Assay Methods for Superoxide Dismutase Activity

Review Articles

Allan S. Manning 305 Reperfusion-Induced Arrhythmias: Do Free Radicals Play a Critical Role?

Józef Kędziora, Grzegorz Bartosz 317 Down's Syndrome: A Pathology Involving the Lack of Balance of Reactive Oxygen Species

331 Announcements and Calendar

333 Instructions to Contributors

Volume 4, Number 6 1988

CONTENTS

Kelvin J. A. Davies 335 The Radical View: Of Meetings, Conferences, & Books

Original Contributions

John A. Hartley, Krzysztof Reszka, J. William Lown 337 Photosensitization by Antitumor Agents, 4. Anthrapyrazole-Photosensitized Formation of Single Strand-Breaks in DNA

P. van der Valk, J. J. P. Gille, L. H. W. van der Pilas, J. F. Jongkind, A. Verkerk, A. W. T. Konings, H. Joenje 345 Characterization of Oxygen-Tolerant Chinese Hamster Ovary Cells: II. Energy Metabolism and Antioxidant Status

Douglas J. Darr, Souzan Yanni, Sheldon R. Pinnell 357 Protection of Chinese Hamster Ovary Cells from Paraquat-Mediated Cytotoxicity by a Low Molecular Weight Mimic of Superoxide Dismutase (DF-Mn)

Review Articles

Christoph Richter, Balz Frei 365 Ca^{2+} Release from Mitochondria Induced by Prooxidants

Lanfranco Masotti
Emanuela Casali
Tommaso Galeotti 377 Lipid Peroxidation in Tumor Cells

Keith T. Oldham
Karen S. Guice
Peter A. Ward
Kent J. Johnson 387 The Role of Oxygen Radicals in Immune Complex Injury

Brief Communication

Joseph C. Fantone
Sem H. Phan 399 Oxygen Metabolite Detoxifying Enzyme Levels in Bleomycin-Induced Fibrotic Lungs

403 Announcements and Calendar

405 Volume 4 List of Contents and Author Index

413 Instructions to Contributors